Immunization against infectious diseases

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Immunization against infectious diseases

- Immunization is one of the most important tools (along with sanitation) used to prevent morbidity and mortality from infection diseases.

- Active immunity ;- the administration of most vaccinations induce a durable antibody response.

- Passive immunization ;- occurs when performed antibodies are given (eg, immune globulin from pooled serum), resulting in temporary protection which is a less durable response.

- The two variants of active immunization are:-

✓ live attenuated vaccine (which are believed to result in an immunologic response more like natural infection).

✓ Inactivated or killed vaccines.

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- The schedule of vaccinations varies based on:-

✓ The risk of the disease being prevented by vaccinations.

✓ Whether a vaccine has been given previously.

✓ The immune status of the patient.

✓ The safety of the vaccine.

❖Recommended immunization :-

1. Healthy adult :-

- Vaccination recommendations are made by the Advisory Committee on immunization Practice.

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❖ Recommended immunization :-

2. Pregnant women :-

- ➢ **Given the uncertainty of risks to the fetus, vaccination during pregnancy is generally avoided with the following exceptions :-**
- ✓ **Tetanus.**
- ✓ **Diphtheria.**
- ✓ **Influenzas.**

- ➢ **Live vaccine are avoided during pregnancy.**

- ➢ **Influenzas can be a serious infection if acquired in pregnancy, and all pregnant women should be offered influenzas (inactivated) vaccination.**

- ➢ **The live attenuated (intranasal) influenza vaccine is not recommended during pregnancy.**

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❖ Recommended immunization :-

3. HIV-infected adults :-

- HIV-infected patients have impaired cellular and B cell responses.
- Inactivated or killed vaccinations can generally be given without any consequence, but the recipient may not be able to mount an adequate antibody response.
- Live or attenuated vaccines are generally avoided with some exceptions (i.e., in patients with CD4+ T lymphocytes greater than 200 cells/mcl.
- Timing of vaccination is important to optimize response.
- If possible, vaccination should be given early in the course of HIV disease or following immune reconstitution.

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❖ Recommended immunization :-

4. Hematopoietic Cell Transplantation Recipients :-

➢ **Hematopoietic Cell Transplantation (HCT) Recipients have varying rates of immune reconstitution following transplantation, depending on :-**

1. **The type of chemotherapy or radiotherapy used pre transplant.**
2. **The preparative regimen used for the transplant.**
3. **Whether graft-versus-host disease is present.**
4. **The type of immunosuppression used post transplantation.**

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❖ Recommended immunization :-

4. Hematopoietic Cell Transplantation Recipients :-

- **Vaccines may not work immediately in the posttransplant period.**
- **B cells may take 3-12 months to return to normal posttransplant.**
- **T cells that can respond to new antigens appear only 6-12 months post-transplant.**
- **B cells of posttransplant patients treated with rituximab may take up to 6 months to fully recover after the last dose of the medication.**
- **Vaccines are therefore administered 6-12 months following transplantation with a minimum of 1 month between doses to maximize the probability response.**

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❖ Recommended immunization :-

5. Solid organ transplant Recipients :-

- Solid organ transplant Recipients demonstrate a broad spectrum of immunosuppression , depending on the reason for and type of organ transplantation and the nature of the immunosuppression .

- These factors affect the propensity for infection post transplantation and the ability to develop antibody response to vaccinations.

- Vaccines are given during the pretransplant period to optimize antibody response.

- If this is not possible, most expert give vaccines 3-6 months following transplantation.

- Live vaccines are contraindicated in the posttransplant period.

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❖ Recommended immunization :-

- Individuals traveling to other countries frequently require immunizations in addition to those routinely recommended and may be benefit from chemoprophylaxis against various diseases.

- In general , live attenuated vaccines (measles, mumps, rubella, yellow fever, and oral typhoid vaccine) should not be given to immunosuppressed individuals or household members of immunosuppressed people or to pregnant women.

- Immunoglobulin should not be given for 3 months before or at least 2 weeks after live virus vaccines, because it may attenuate the antibody response.

- Most vaccines are safe to administer.

Thank You